

AMENDMENTS TO THE CLAIMS

Claim 1-8 (Cancel)

Claim 9 (Previously Presented) A method for producing a cylindrical cleaning element, comprising:

preparing a cylindrical cleaning element having an axial through-hole formed therein for passing a rotary shaft, the cylindrical cleaning element being capable of being in either a wet state or a dry state and the through-hole having, in a wet state, a predetermined diameter smaller than a diameter of the rotary shaft;

wetting the cylindrical cleaning element;

enlarging the through-hole of the wet cylindrical cleaning element so that it has a diameter larger than the diameter of the rotary shaft; and

dry-setting the enlarged cylindrical cleaning element.

Claim 10 (Previously Presented) A method for producing a cylindrical cleaning element according to claim 9, wherein the cylindrical cleaning element is purified in said wet state.

Claim 11 (Original) A method for producing a cleaning member comprising a cylindrical cleaning element and a rotary shaft held therein with a press-fit, the method comprising:

preparing a rotary shaft and a cylindrical cleaning element, the rotary shaft having a predetermined diameter, the cylindrical cleaning element having an axial through-hole formed therein and being capable of being either in a wet state or a dry state, the through-hole having, in a wet state, a predetermined diameter smaller than the diameter of the rotary shaft;

wetting the cylindrical cleaning element;

enlarging the through-hole of the wet cylindrical cleaning element so that it has a diameter larger than the diameter of the rotary shaft;

dry-setting the enlarged cylindrical cleaning element;

inserting the rotary shaft into the through-hole of the dry-set cylindrical cleaning element; and

wetting the cylindrical cleaning element into which the rotary shaft has been inserted, to thereby contract the diameter of the through-hole of the cylindrical cleaning element and provide a press-fit between the cylindrical cleaning element and the rotary shaft.

Claim 12 (Original) The method according to claim 11, wherein a cylindrical cleaning element made of sponge comprising polyvinyl acetal or polyvinyl formal is prepared as the cylindrical cleaning element.

Claim 13 (Previously Presented) A tool for enlarging a diameter of a cylindrical cleaning element used in a method for forming a cleaning member, in which a cylindrical cleaning element having an axial through-hole formed therein and having a predetermined inner diameter in a wet state is caused to be wet and the through-hole of the wet cylindrical cleaning element is enlarged, the cylindrical cleaning element is dry-set in a form such that the through-hole is enlarged, a rotary shaft is inserted into the through-hole of the dry-set cylindrical cleaning element, the rotary shaft having an outer diameter smaller than a diameter of the enlarged through-hole and larger than the predetermined inner diameter of the through-hole, and the dry-set cylindrical cleaning element after insertion of the rotary shaft is caused to be wet, to thereby provide a press-fit between the cylindrical cleaning element and the rotary shaft to form said cleaning member,

the tool being adapted to be used for enlarging an inner diameter of the wet cylindrical cleaning element in the method and comprising:

a cylindrical segmented core rod having an axial through-hole formed therein and capable of being diametrically enlarged or contracted, the segmented core rod being adapted to be inserted in a contracted state into the through-hole of the wet cylindrical cleaning element; and

a diameter-enlarging element adapted to be inserted into the through-hole of the segmented core rod which has been inserted into the through-hole of the cylindrical cleaning element, so as to enlarge a diameter of the segmented core rod to a diameter larger than the outer diameter of the rotary shaft.

Claim 14 (Original) The tool according to claim 13, wherein the segmented core rod has a generally circular cross-section and includes a plurality of slits arranged in a circumferential direction thereof in a predetermined spaced relationship and extending in an axial direction of the segmented core rod, and comprises a plurality of segments divided by the slits and extending in the axial direction.

Claim 15 (Original) The tool according to claim 14, wherein the through-hole of the segmented core rod has a taper surface which is tapered from opposite ends thereof toward the center of the segmented core rod, and wherein the diameter-enlarging element comprises two elements inserted from the opposite ends of the through-hole of the segmented core rod, each of the elements being tapered from a base end to a distal end thereof in conformity to the taper surface of the through-hole and adapted to be inserted from an end portion of the through-hole of the segmented core rod to a predetermined depth into the through-hole, to thereby enlarge the diameter of the segmented core rod to the diameter larger than the diameter of the rotary shaft.

Claim 16 (New) A cylindrical cleaning element having an axial through-hole formed therein in order to hold a rotary shaft having a predetermined outer diameter with a press-fit, wherein said cylindrical cleaning element has a structure such that, when said cylindrical cleaning element is in a dry state, said through-hole has a diameter larger than the outer diameter of the rotary shaft, and when said cylindrical cleaning element is in a wet state and not on said rotary shaft, said through-hole has a diameter smaller than the outer shaft diameter of said rotary shaft, such that when said cylindrical cleaning element is in a wet state and on said rotary shaft, the rotary shaft is held in said through-hole with the press-fit.

Claim 17 (New) The cylindrical cleaning element of claim 16, wherein said cylindrical cleaning element is made of sponge comprising polyvinyl acetal or polyvinyl formal.

Claim 18 (New) The cylindrical cleaning element of claim 16, wherein said cylindrical cleaning element is made in the dry state, then placed in the wet state and has said through-hole enlarged, and is then purified in the wet state.

Claim 19 (New) A cleaning member comprising:
a cylindrical cleaning element having an axial through-hole formed therein; and
a rotary shaft held in said through-hole with a press-fit, said rotary shaft having an outer shaft diameter;
wherein said cylindrical cleaning element is capable of being in either a wet state or a dry state;
wherein said cylindrical cleaning element has a structure such that, when said cylindrical cleaning element is in a dry state, said through-hole has a diameter larger than the outer diameter of the rotary shaft, and when said cylindrical cleaning element is in a wet state and not on said rotary shaft, said through-hole has a diameter smaller than the outer shaft diameter of said rotary shaft, such that when said cylindrical cleaning element is in a wet state and on said rotary shaft, the rotary shaft is held in said through-hole with the press-fit.

Claim 20 (New) The cleaning member of claim 19, wherein each of said rotary shaft and said through-hole has a circular cross-section.

Claim 21 (New) The cleaning member of claim 19, wherein said rotary shaft has a surface including raised and recessed portions for preventing sliding motion of said cylindrical cleaning element thereon.

Claim 22 (New) The cleaning member of claim 19, wherein said cylindrical cleaning element is made of sponge comprising polyvinyl acetal or polyvinyl formal.

Claim 23 (New) The cleaning member of claim 19, wherein said cylindrical cleaning element is made in the dry state, then placed in the wet state and has said through-hole enlarged, and is then purified in the wet state.